

WHAT IS CLAIMED:

1 1. A method of reducing sensing artifacts in cardiac electrical activity sensing equipment
2 used in concert with cardiac stimulating equipment comprising the steps of:
3 operably electrically connecting an adapter to a conventional cardiac
4 stimulator and an electrocardiograph;
5 applying an electrical stimulus to cardiac tissue via a stimulating lead;
6 simultaneously enabling an impedance switch operably electrically
7 connected to a sensing lead to increase the impedance of the sensing lead;
8 further simultaneously enabling sensor lead shunts to dissipate any residual
9 charge in the sensing lead;
10 thereafter, terminating the electrical stimulus and simultaneously activating
11 stimulation shunts to dissipate residual charge in the stimulation lead; and
12 thereafter, simultaneously, disabling the impedance switch and disabling the
13 sensor lead shunts to allow sensing of cardiac electrical activity.

1 2. The method as claimed in claim 1, further comprising the step of sensing cardiac
2 electrical activity within about one hundred milliseconds after applying the electrical stimulus.

1 3. The method as claimed in claim 1, further comprising the step of sensing cardiac
2 electrical activity within about fifty milliseconds after applying the electrical stimulus.

1 4. The method as claimed in claim 1, further comprising the step of incorporating the
2 adapter in a lead connector.

1 5. The method as claimed in claim 1, further comprising the step of incorporating the
2 adapter into a lead assembly.

1 6. An adapter for operable electrical connection between a conventional cardiac stimulator
2 having stimulation outputs, cardiac sensing equipment having sensing inputs and a lead set
3 having at least one pair of stimulation leads and at least one pair of sensing leads, the adapter
4 comprising:

5 a current sensing circuit interposed between the stimulation outputs and
6 one of the pairs of stimulation leads;

7 a switch timing circuit interconnecting the current sensing circuit with an
8 impedance switch;

9 a stimulation shunt timing circuit interconnecting the current sensing
10 circuit with a stimulation shunt, the stimulation shunt selectively electrically
11 interconnecting the pair of stimulation leads; and

12 a sensing shunt timing circuit interconnecting the current sensing circuit
13 with a sensor shunt.

1 7. An adapter for operable electrical connection between a conventional cardiac stimulator
2 having stimulation outputs, cardiac sensing equipment having sensing inputs and a lead set

3 having at least one pair of stimulation leads and at least one pair of sensing leads, the adapter
4 comprising:

5 a current detector for detecting current at the stimulation outputs;

6 a pair of impedance switches interposed between the sensing inputs and
7 the sensing leads, the impedance switches being operably controlled by the
8 current detector;

9 a stimulation shunt circuit for shunting the stimulation leads to dissipate
10 residual electrical charge, the stimulation shunt circuit being operably controlled
11 by the current detector; and

12 a sensing shunt circuit for shunting the sensing leads to dissipate residual
13 electrical charge.

1 8. The adapter as claimed in claim 7, further comprising a switch timing circuit controlled
2 by the current detector for controlling the impedance switches.

1 9. The adapter as claimed in claim 7, further comprising a sensor shunt timing circuit
2 controlled by the current detector for controlling the sensor shunt circuit.

1 10. The adapter as claimed in claim 7, in which the adapter is incorporated into a lead
2 connector.

1 11. The adapter as claimed in claim 7, in which the adapter is incorporated into a lead set.

1 12. The adapter as claimed in claim 7, in which the adapter is powered by a power source
2 selected from a group consisting of an internal battery, an externally connected power supply, the
3 conventional cardiac stimulator and the cardiac sensing equipment.

1 13. The adapter as claimed in claim 7, in which the adapter allows the sensing of cardiac
2 electrical activity within about one hundred milliseconds after applying the electrical stimulus.

1 14. The adapter as claimed in claim 7, in which the adapter allows the sensing of cardiac
2 electrical activity within about fifty milliseconds after applying the electrical stimulus.

1 15. An adapter for operable electrical connection between a conventional cardiac stimulator
2 having stimulation outputs, cardiac sensing equipment having sensing inputs and a lead set
3 having at least one pair of stimulation leads and at least one pair of sensing leads, the adapter
4 comprising:

5 means for detecting current at the stimulation outputs;

6 means for selectively switching impedance interposed between the sensing

7 inputs and the sensing leads, the means for selectively switching impedance being
8 operably controlled by the means for detecting current;

9 means for shunting the stimulation leads to dissipate residual electrical

10 charge, the stimulation shunting means being operably controlled by the means
11 for detecting current; and

12 means for shunting the sensing leads to dissipate residual electrical charge.

1 16. The adapter as claimed in claim 15, further comprising means for timing the impedance
2 switching controlled by the means for detecting current for controlling the means for selectively
3 switching impedance.

1 17. The adapter as claimed in claim 15, further comprising means for timing the means for
2 shunting the sensing leads controlled by the means for detecting current.

1 18. The adapter as claimed in claim 15, in which the adapter is incorporated into a lead
2 connector.

1 19. The adapter as claimed in claim 15, in which the adapter is incorporated into a lead set.

1 20. The adapter as claimed in claim 15, in which the adapter is powered by a power source
2 selected from a group consisting of an internal battery, an externally connected power supply, the
3 conventional cardiac stimulator and the cardiac sensing equipment.

1 21. The adapter as claimed in claim 15, in which the adapter allows the sensing of cardiac
2 electrical activity within about one hundred milliseconds after applying the electrical stimulus.

1 22. The adapter as claimed in claim 15, in which the adapter allows the sensing of cardiac
2 electrical activity within about fifty milliseconds after applying the electrical stimulus.